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COPY OF PARENT APPLICATION

TITLE: CARGO RACK
APPLICATION NO: 10/715,000
FILING DATE: 11/17/2003
ART UNIT: 3634
OUR FILE NO: 23116

LAW OFFICES OF
ALTER AND WEISS

IRWIN C. ALTER

PATENTS, TRADEMARKS & COPYRIGHTS

19 S. LASALLE STREET, SUITE 1650
CHICAGO, ILLINOIS 60603, U.S.A.
TELEPHONE (312) 337-2100
ALTERANDWEISS@YAHOO.COM

November 17, 2003

VIA EXPRESS MAIL envelope # EV410524927US

Mail Stop – PATENT APPLICATION
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

I, Irwin C. Alter, hereby certify that correspondence is being deposited with the United States Postal Service in Express Mail Envelope EV1-733-548-77US addressed to the Mail Stop PATENT APPLICATION, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 17, 2003.

By: 
Irwin C. Alter

Re: Application for Utility Patent for Cargo Rack – Our File 23116

Dear Sir or Madam:

Enclosed with this letter is the following:

1. Utility Patent Application transmittal;
2. Fee Transmittal;
3. Assignment Papers;
4. Power of Attorney;
5. Declaration for Utility or Design Patent Application with 3 declarations;
6. Information Disclosure Statement by Applicant and accompanying patents;
7. Recordation form coversheet and Patent;
8. A check for \$1374.00 to cover all fees; and
9. A self-addressed stamped postcard for your stamp and return

November 17, 2003

The United States Patent and Trademark Office mailroom stamp hereon acknowledges receipt of:

1. Transmittal Letter;
 2. Utility Patent Application transmittal;
 3. Fee Transmittal;
 4. Assignment Papers;
 5. Power of Attorney;
 6. Declaration for Utility or Design Patent Application with 3 declarations;
 7. Information Disclosure Statement by Applicant and accompanying patents;
 8. Recordation form coversheet and Patent
 9. A check for \$1374.00 to cover all fees; and
 10. A self-addressed stamped postcard for your stamp and return
- RE: Cargo Rack Application sent Express US mail, Envelope No. EV 410524927US – Attorney Ref. No. 23116

Deposit Account No. 01-



03945 U.S. PTO
10/715000



111703

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UTILITY
PATENT APPLICATION
TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

| | |
|------------------------|-----------------|
| Attorney Docket No. | 23116 |
| First Inventor | Bruce Saltzburg |
| Title | Cargo Rack |
| Express Mail Label No. | EV 410524927 US |

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:

Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☒ Applicant claims small entity status.
See 37 CFR 1.27.
3. ☒ Specification [Total Pages _____]
(preferred arrangement set forth below)
- Descriptive title of the invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to sequence listing, a table, or a computer program listing appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 2]
5. Oath or Declaration [Total Sheets _____]
- a. ☒ Newly executed (original or copy)
- b. ☐ Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 18 completed)
- i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s)
name in the prior application, see 37 CFR
1.63(d)(2) and 1.33(b).
6. ☐ Application Data Sheet. See 37 CFR 1.76

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (*Appendix*)
8. Nucleotide and/or Amino Acid Sequence Submission (*if applicable, all necessary*)
- a. ☐ Computer Readable Form (CRF)
- b. Specification Sequence Listing on:
- i. ☐ CD-ROM or CD-R (2 copies); or
- ii. ☐ Paper
- c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. ☒ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement ☒ Power of Attorney
(when there is an assignee)
11. ☐ English Translation Document (if applicable)
12. ☒ Information Disclosure ☐ Copies of IDS
Statement (IDS)/PTO-1449 Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. ☐ Nonpublication Request under 35 U.S.C. 122
(b)(2)(B)(i). Applicant must attach form PTO/SB/35
or its equivalent.
17. ☐ Other:

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.:

Prior application information:

Examiner

Art Unit:

For CONTINUATION of DIVISIONAL APPS only; The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

☒ Customer Number: 01-1154 OR ☒ Correspondence address below

| | | | | | |
|-------------------|--|-----------------------|--------------|-----------------------------------|--------------|
| Name | | Irwin C. Alter | | | |
| Address | | 19 S. LaSalle Street | | | |
| | | Suite 1650 | | | |
| City | | Chicago | | State | IL |
| Country | | USA | | Zip Code | 60603 |
| | | Telephone | 312-337-2100 | | Fax |
| | | | | 312-236-1365 | |
| Name (Print/Type) | | Irwin C. Alter | | Registration No. (Attorney/Agent) | 19510 |
| Signature | | <i>Irwin C. Alter</i> | | Date | NOV 16, 2003 |

This collection of information is required by 27 CFR 178.26

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 1374.00)

Complete if Known

| | |
|----------------------|-----------------|
| Application Number | |
| Filing Date | |
| First Named Inventor | Bruce Saltzburg |
| Examiner Name | |
| Art Unit | |
| Attorney Docket No. | 23116 |

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number: 01-1154
Deposit Account Name: Alter and Weiss

The Director is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Credit any overpayments

☒ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

| Large Entity Fee Code (\$) | Small Entity Fee Code (\$) | Fee Description | Fee Paid |
|-------------------------------|-------------------------------|------------------------|-------------|
| 1001 770 | 2001 385 | Utility filing fee | 770.00 |
| 1002 340 | 2002 170 | Design filing fee | |
| 1003 530 | 2003 265 | Plant filing fee | |
| 1004 770 | 2004 385 | Reissue filing fee | |
| 1005 160 | 2005 80 | Provisional filing fee | |
| SUBTOTAL (1) | | | (\$ 770.00) |

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

| Total Claims | Extra Claims | Fee from below | Fee Paid |
|--------------------|--------------|----------------|----------|
| 27 | -20** = 7 | 18 | 126 |
| Independent Claims | 6 | -3** = 3 | 86 |
| Multiple Dependent | | | 384 |

| Large Entity Fee Code (\$) | Small Entity Fee Code (\$) | Fee Description |
|-------------------------------|-------------------------------|--|
| 1202 18 | 2202 9 | Claims in excess of 20 |
| 1201 86 | 2201 43 | Independent claims in excess of 3 |
| 1203 290 | 2203 145 | Multiple dependent claim, if not paid |
| 1204 86 | 2204 43 | ** Reissue independent claims over original patent |
| 1205 18 | 2205 9 | ** Reissue claims in excess of 20 and over original patent |

SUBTOTAL (2) (\$ 384.00)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Small Entity

| Fee Code (\$) | Fee Code (\$) | Fee Description | Fee Paid |
|---------------|---------------|--|----------|
| 1051 130 | 2051 65 | Surcharge - late filing fee or oath | |
| 1052 50 | 2052 25 | Surcharge - late provisional filing fee or cover sheet | |
| 1053 130 | 1053 130 | Non-English specification | |
| 1812 2,520 | 1812 2,520 | For filing a request for <i>ex parte</i> reexamination | |
| 1804 920* | 1804 920* | Requesting publication of SIR prior to Examiner action | |
| 1805 1,840* | 1805 1,840* | Requesting publication of SIR after Examiner action | |
| 1251 110 | 2251 55 | Extension for reply within first month | |
| 1252 420 | 2252 210 | Extension for reply within second month | |
| 1253 950 | 2253 475 | Extension for reply within third month | |
| 1254 1,480 | 2254 740 | Extension for reply within fourth month | |
| 1255 2,010 | 2255 1,005 | Extension for reply within fifth month | |
| 1401 330 | 2401 165 | Notice of Appeal | |
| 1402 330 | 2402 165 | Filing a brief in support of an appeal | |
| 1403 290 | 2403 145 | Request for oral hearing | |
| 1451 1,510 | 1451 1,510 | Petition to institute a public use proceeding | |
| 1452 110 | 2452 55 | Petition to revive - unavoidable | |
| 1453 1,330 | 2453 665 | Petition to revive - unintentional | |
| 1501 1,330 | 2501 665 | Utility issue fee (or reissue) | |
| 1502 480 | 2502 240 | Design issue fee | |
| 1503 640 | 2503 320 | Plant issue fee | |
| 1460 130 | 1460 130 | Petitions to the Commissioner | |
| 1807 50 | 1807 50 | Processing fee under 37 CFR 1.17(q) | |
| 1806 180 | 1806 180 | Submission of Information Disclosure Stmt | 180 |
| 8021 40 | 8021 40 | Recording each patent assignment per property (times number of properties) | 40 |
| 1809 770 | 2809 385 | Filing a submission after final rejection (37 CFR 1.129(a)) | |
| 1810 770 | 2810 385 | For each additional invention to be examined (37 CFR 1.129(b)) | |
| 1801 770 | 2801 385 | Request for Continued Examination (RCE) | |
| 1802 900 | 1802 900 | Request for expedited examination of a design application | |

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ 220.00)

SUBMITTED BY

| | | | | | |
|-------------------|-----------------------|-----------------------------------|---------------|-----------|--------------|
| Name (Print/Type) | Irwin C. Alter | Registration No. (Attorney/Agent) | 19510 | Telephone | 312-337-2100 |
| Signature | <i>Irwin C. Alter</i> | Date | Nov. 16, 2003 | | |

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.

SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ASSIGNMENT

Law Offices of
ALTER AND WEISS
19 S. LaSalle Street Suite 1650
Chicago, IL 60603

FOR VALUE RECEIVED, the receipt of which is hereby acknowledged, the following inventor or inventors (hereinafter called "ASSIGNOR"):

BRUCE SALTZBURG, DAVID J. WOJOTOWICZ, JEFFERY L. LAMBER, THOMAS J. ST. GERMAIN, ANTHONY J. TROYNER, and MITCHELL E. BIANCHIN

hereby assigns, transfers, and sets over to:

EDSAL MANUFACTURING CO., INC., 4400 South Packers Ave., Chicago, IL 60609.

(hereinafter "ASSIGNEE"), the entire world wide right, title and interest in and to the invention known as:

CARGO RACK

for which a United States Patent Application was executed on

and all rights and privileges under any letters patent which may be granted thereon, including all rights, if any, throughout the entire world to sue for all past infringements which may have occurred before the execution of this assignment.

(1) The ASSIGNOR agrees without charge to said ASSIGNEE but at its expense (a) to execute (i) all necessary papers to be used in connection with this application and any additional, continuing, or divisional applications, as the ASSIGNEE may deem necessary or expedient, (ii) all papers in connection with any interference or other legal or quasilegal proceeding relating to this application or any additional, continuing, or divisional applications thereof, (iii) all papers and documents which may be necessary in connection with the preparation and filing of any foreign applications or with making claims in priority rights granted under the provisions of the International Convention for the Protection of Industrial Property Rights or similar agreements; (b) to cooperate with ASSIGNEE in every way possible in obtaining evidence and going forward in any such proceedings; and (c) to perform all other affirmative acts which may be necessary or desirable to obtain a grant of a valid patent for said invention in any country throughout the world.

(2) ASSIGNOR hereby authorizes and requests the Commissioner of Patents of the United States, and the appropriate officials in any other country, to issue any and all Letters Patents that may be granted upon any patent application or additional, continuing, or divisional applications thereof to the ASSIGNEE, its successors and assigns.

(3) ASSIGNOR hereby covenants and warrants that he has the full right to convey the entire right, title and interest by this instrument, free of any encumbrances and that no other agreement has been or will be executed in conflict herewith.

(4) ASSIGNOR hereby grants to the law firm of ALTER AND WEISS of Chicago Illinois authority and power to insert on this instrument any further identification which may be necessary or desirable for purposes of recordation in the United States Patent Office or the Patent Office of any foreign country.

Date 11-12-03 Name of Inventor [Signature] (Seal)
Date 11/4/03 Name of Inventor [Signature] (Seal)
Date Nov 11, 2003 Name of Inventor [Signature] (Seal)
Date 11/11/03 Name of Inventor [Signature] (Seal)
Date 11/11/03 Name of Inventor [Signature] (Seal)
Date 11-NOV-03 Name of Inventor [Signature] (Seal)

The execution by the inventor(s) should be witnessed by two witnesses who sign here. If this Assignment is signed outside the United States, it should preferably be signed before a United States Consul.

Witness Carey Villayan
Witness Barbara Kasuk

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POWER OF ATTORNEY and CORRESPONDENCE ADDRESS INDICATION FORM

| | |
|------------------------|-----------------|
| Application Number | |
| Filing Date | |
| First Named Inventor | Bruce Saltzburg |
| Title | Cargo Rack |
| Art Unit | |
| Examiner Name | |
| Attorney Docket Number | 23116 |

I hereby appoint:

☒ Practitioners associated with the Customer Number:

01-1154

OR

☐ Practitioner(s) named below:

| Name | Registration Number |
|------|---------------------|
| | |
| | |
| | |
| | |

as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Please recognize or change the correspondence address for the above-identified application to:

☐ The address associated with the above-mentioned Customer Number:

OR

☐ The address associated with Customer Number:

OR

☒ Firm or Individual Name The Law Offices of Alter and Weiss

Address 19 S. LaSalle St., Suite 1650

Address

City Chicago State IL Zip 60603

Country USA

Telephone 312-337-2100 Fax 312-236-1365

I am the:

☐ Applicant/Inventor.

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

SIGNATURE of Applicant or Assignee of Record

Name BRUCE Saltzburg

Signature *[Signature]*

Date 11-7-03

Telephone

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

Declaration
Submitted
With Initial
Filing

OR

Declaration
Submitted after Initial
Filing (surcharge
(37 CFR 1.16 (e))
required)

Attorney Docket Number

23116

First Named Inventor

Bruce Saltzburg

COMPLETE IF KNOWN

Application Number

Filing Date

Art Unit

Examiner Name

I hereby declare that:

Each inventor's residence, mailing address, and citizenship are as stated below next to their name.

I believe the inventor(s) named below to be the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

CARGO RACK

(Title of the Invention)

the specification of which



is attached hereto

OR



was filed on (MM/DD/YYYY)

as United States Application Number or PCT International

Application Number

and was amended on (MM/DD/YYYY)

(if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

| Prior Foreign Application Number(s) | Country | Foreign Filing Date (MM/DD/YYYY) | Priority Not Claimed | Certified Copy Attached? | |
|--|---------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| | | | | Yes | No |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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DECLARATION — Utility or Design Patent ApplicationDirect all correspondence to: ☐ Customer Number: OR ☒ Correspondence address below

Name

Irvin C. Aller

Address

19 South LaSalle St. Suite 1650

City

Chicago

State

IL

ZIP

60603

Country

USA

Telephone

312-337-2100

Fax

312-236-1365

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAME OF SOLE OR FIRST INVENTOR:



A petition has been filed for this unsigned inventor

Given Name

(first and middle [if any])

Bruce

Family Name

or Surname

Saltzberg

Inventor's
Signature

Date

11-7-03

Residence: City

NORTHBROOK

State

ILL.

Country

USA

Citizenship

USA

Mailing Address

2617 MAYPOLE

City

NORTHBROOK

State

ILL

ZIP

60062

Country

USA

NAME OF SECOND INVENTOR:



A petition has been filed for this unsigned inventor

Given Name

(first and middle [if any])

David

Family Name

or Surname

Wojtowicz

Inventor's
Signature

Date

4/11/03

Residence: City

Orland Park

State

IL

Country

USA

Citizenship

USA

Mailing Address

14670 Maple Creek Drive

City

Orland Park

State

IL

ZIP

60467

Country

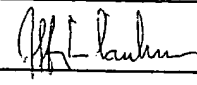
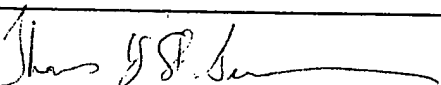
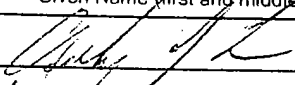
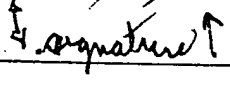
USA



Additional inventors or a legal representative are being named on the 2 supplemental sheet(s) PTO/SB/02A or 02LR attached hereto.

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DECLARATION**ADDITIONAL INVENTOR(S)**
Supplemental SheetPage 3 of 4

| | | | |
|--|-------------|---|--------------------|
| Name of Additional Joint Inventor, if any: | | <input type="checkbox"/> A petition has been filed for this unsigned inventor | |
| Given Name (first and middle (if any)) | | Family Name or Surname | |
| Jeffery L. | | Lamber | |
| Inventor's Signature  | | Date Nov 11, 2003 | |
| Richlon Park Residence: City | IL State | USA Country | USA Citizenship |
| 4123 Birchwood Road Mailing Address | | | |
| Mailing Address | | | |
| Richlon Park City | IL State | 60471 Zip | USA Country |
| Name of Additional Joint Inventor, if any: | | <input type="checkbox"/> A petition has been filed for this unsigned inventor | |
| Given Name (first and middle (if any)) | | Family Name or Surname | |
| Thomas J. | | St. Germain | |
| Inventor's Signature  | | Date 11/11/03 | |
| Bridgeview Residence: City | IL State | USA Country | USA Citizenship |
| 7613 Beloit Avenue Mailing Address | | | |
| Mailing Address | | | |
| Bridgeview City | IL State | 60455 Zip | USA Country |
| Name of Additional Joint Inventor, if any: | | <input type="checkbox"/> A petition has been filed for this unsigned inventor | |
| Given Name (first and middle (if any)) | | Family Name or Surname | |
| Anthony J.  | | Troyner | |
| Inventor's Signature  | | Date 11/11/03 | |
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| Application Number | |
| Filing Date | |
| First Named Inventor | Bruce Saltzburg |
| Art Unit | |
| Examiner Name | |
| Attorney Docket Number | 23116 |

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|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
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Application Number

Filing Date

First Named Inventor

Bruce Saltzburg

Art Unit

Examiner Name

Attorney Docket Number

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FOREIGN PATENT DOCUMENTS

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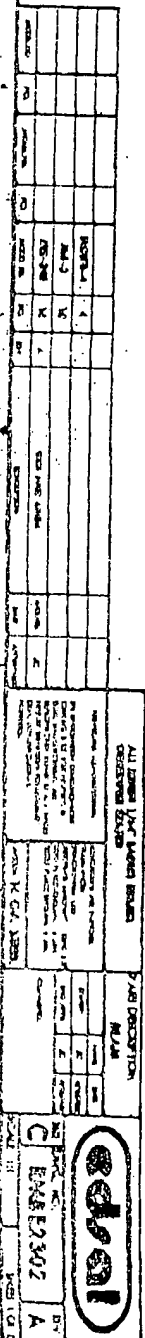
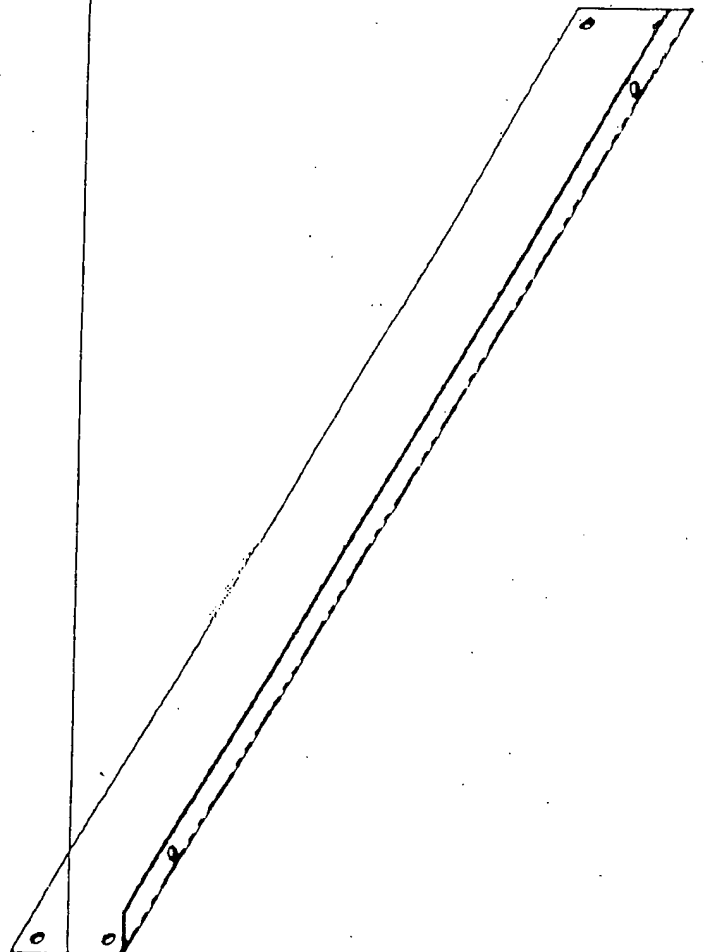
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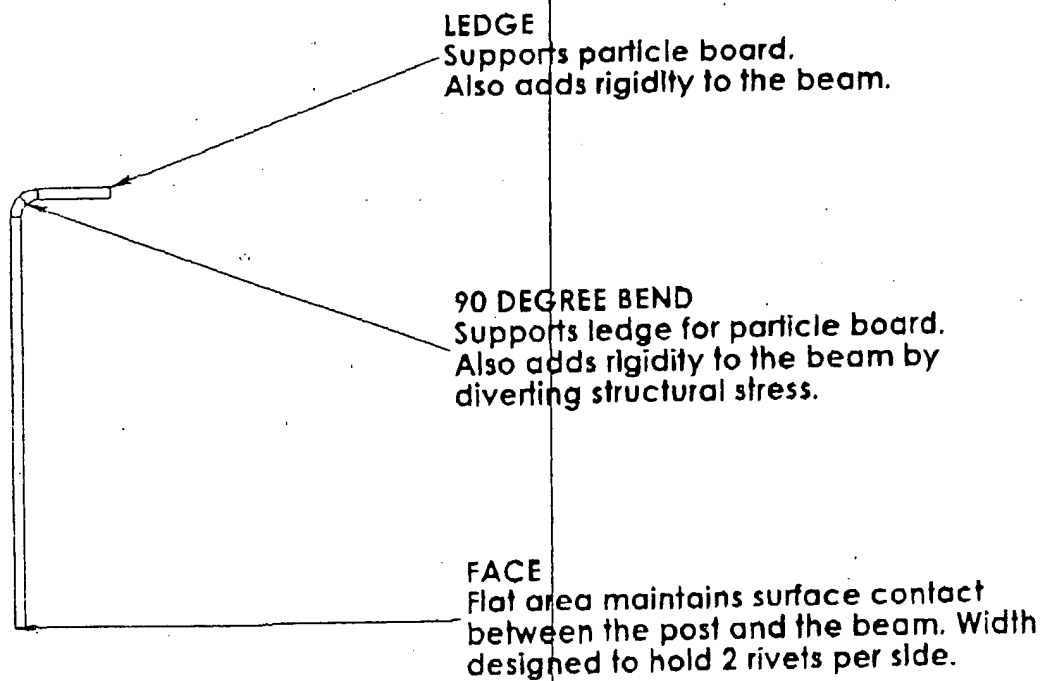
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STANDARD MR-185 & MR-245 BEAM PROFILE

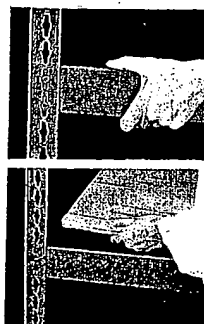
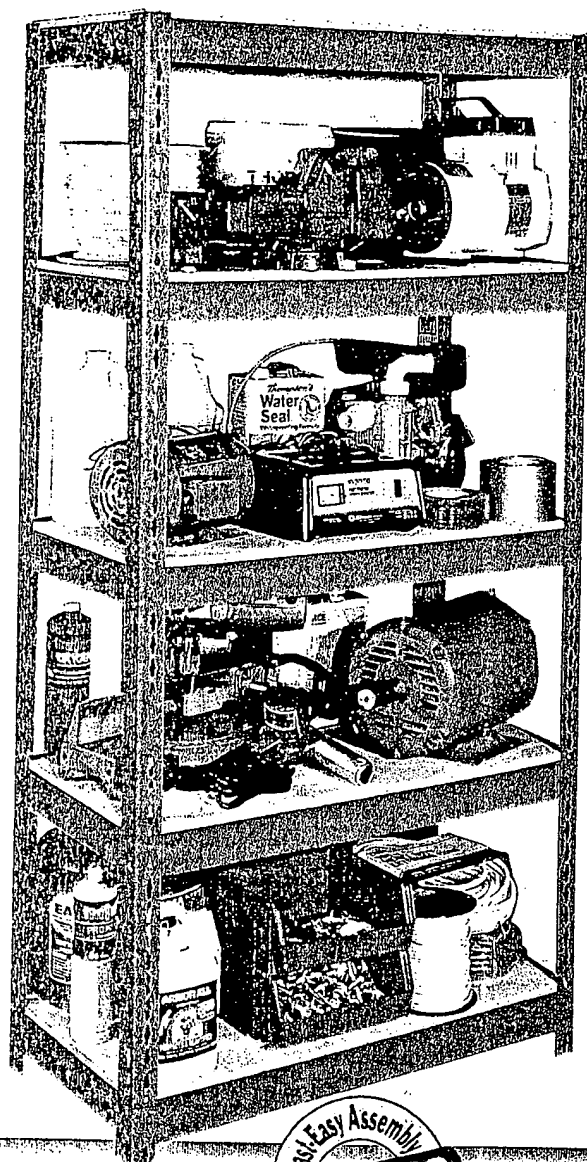


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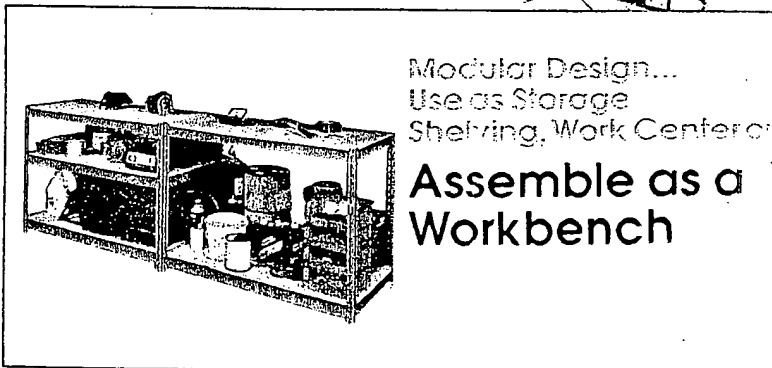
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|--------------|--------------------------------|-----------|---------------------------|----------------|-------------|
| MR60-4 | 25 1/8 x 22 x 36 11/16 | 1.23 | 18 x 36 x 60 | 4 | 64# |
| MR185 | 31 1/8 x 23 x 36 5/8 | 1.53 | 18 x 36 x 72 | 5 | 85# |
| MR2 | 31 1/8 x 29 x 36 5/8 | 1.92 | 24 x 36 x 72 | 5 | 101# |
| MR245 | 31 1/8 x 29 x 48 5/8 | 2.55 | 24 x 48 x 72 | 5 | 127# |



Modular Design...
Use as Storage
Shelving, Work Center or
**Assemble as a
Workbench**

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DECLARATION**ADDITIONAL INVENTOR(S)**
Supplemental SheetPage 4 of 4

| | | | |
|---|-------------|---|--------------------|
| Name of Additional Joint Inventor, if any: | | <input type="checkbox"/> A petition has been filed for this unsigned inventor | |
| Given Name (first and middle (if any)) | | Family Name or Surname | |
| Mitchell E. | | Bianchin | |
| Inventor's Signature <i>Mitchell E. Bianchin</i> | | Date <i>11-10-2003</i> | |
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| 138 West Kenilworth Avenue Mailing Address | | | |
| Mailing Address | | | |
| Villa Park City | IL State | 60181 Zip | USA Country |
| Name of Additional Joint Inventor, if any: | | <input type="checkbox"/> A petition has been filed for this unsigned inventor | |
| Given Name (first and middle (if any)) | | Family Name or Surname | |
| | | | |
| Inventor's Signature | | Date | |
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Internal Address: _____

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4. Application number(s) or patent number(s):

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Our File 23116

Street Address: 19 S. LaSalle St.

Suite 1650

City: Chicago State: IL Zip: 60603

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IN THE UNITED STATE PATENT AND TRADEMARK OFFICE

UTILITY PATENT APPLICATION

CARGO RACK

BACKGROUND OF THE INVENTION

This invention relates in general to a shelving unit and more particularly to the structural beams in the shelving unit. Several products are similar to this product in that they rely on beams affixed to posts to form a rigid shell that in turn supports shelf members. Examples of such prior art are illustrated in the following patents: 5,553,549 and 5,749,481.

Similar frameworks are typically provided with four vertical corner posts and a plurality of horizontal members. For example, U.S. Patent 5,553,549 issued to Nilsson discloses a framework for a shelving unit comprising horizontal members, a plurality of vertical posts, and a locking attachment for connecting the horizontal members to the vertical posts. One disadvantage of this prior art design is that the horizontal support members do not provide enough load bearing capabilities. A further result of this is a poor utilization of material. The material gauge or thickness is higher than necessary and the strength to material weight ratio could be improved which may result in a lower cost per unit of capacity.

U.S. Patent 5,749,481 issued to Miller utilizes a storage rack and a structural beam to maximize the strength of the beam construction. However, the storage rack and structural beam of this patent are very large. Its size assumes a consumer will have an excess of space to house the rack. The storage rack utilizes a structural member to ensure that decking members and pallets will be adequately supported. While the rack has greater strength capabilities, it is very large in size and in weight. The structural beams are connected to the support columns or posts by removeable attachment pins. Specifically, each beam is provided with an upright

connector plate with holes for receiving a pin which is then inserted through a selected hole in the vertical column or post. Another disadvantage of this prior art design is that there are a multiplicity of components required for assembly including the aforementioned pins as well as pliers or screwdrivers. Furthermore, it is possible for the nuts and bolts to become loosened over time, thereby resulting in potential instability of the shelving assembly.

Previous structural beams have been used in similar shelving units. An example is a beam model that had a profile of an "L" shape. The beam simply had a flange that came off perpendicular to the top of the beam. Although there are other differences between this prior art and the present invention such as the shape of apertures on the vertical posts, the crux of this prior art is the cross section of the beam profile. The shelving unit containing this beam is an adequate shelving unit. However, this beam does not have a large load bearing capacity. The overall strength and capacity may be substantially improved. Namely, it is possible to provide greater rigidity against horizontal deflection of the beam and maintain the depth of the unit by providing additional rigidity against deflection.

BRIEF SUMMARY OF THE INVENTION

These and other problems and disadvantages associated with the prior art are overcome by the invention disclosed herein by providing a structural beam in the form of three embodiments for a storage unit that minimizes cost per unit, maximizes strength to material weight ratio, is easily assembled, and ensures that cargo will be adequately and better supported.

The invention is directed to the structural beams and to the shelving unit embodying the structural beams. The structural beams are produced in three styles. Two of the styles allow the shelf member to be mounted in a recessed position on the beam while the other style allows

the shelf member to be mounted on top of the beam thereby being completely exposed. One recessed structural beam contains a return flange at its base, a recessed flange at its top, and a rib formed there between. The second recessed structural beam is a slight variation of the first in that it does not include a rib; however, it contains a return flange at its base and a recessed flange at its top. The standard structural beam contains an angled return flange at its base, a standard angled flange at its top, and a rib there between.

The cross section and profile of each of the beams in the framework results in greater rigidity and column strength. The cross-section of the beams' profiles improves the strength by "stiffening" the beam, and reducing the amount of deflection under loading. This allows a stronger unit at greater load bearing capacities with less material. The beams offer a combination of strength and ruggedness and a unique appearance.

The primary purpose of the rib, as used with both recessed and standard beams, is to provide rigidity against horizontal deflection. However, it also maintains the depth of the unit and provides additional rigidity against deflection in this axis. Furthermore, the return flanges of all three beams provide rigidity against horizontal axis deflection. The return flanges also maintain the depth of the unit and provide additional rigidity against deflection in this axis.

The standard angled flange on the standard structural beam adds rigidity to the beam and supports the shelving member from its bottom. The concept for a slight angle in the flange was designed and based on the flexibility of particle board used as shelving. As a load is applied, the board will begin to flex. The gap created by the form will begin to close and, as the load is progressively applied, will establish complete surface contact. Therefore, the unit gathers additional support as the load becomes heavier all the way up to the complete surface contact.

Furthermore, the angled return flange as used in the standard beam comes into effect as weight is applied and deflection begins. As indicated in the drawing, the part itself begins to bend or flex outward. As the applied load increases, the angled return flange provides additional resistance against this movement.

The recessed flange; however, provides support to the shelving member from the sides as well as the bottom. In doing so, the recessed flange maintains the integrity of a single piece of steel. There is no need for a completely separate part to trap the sides of the particle board, provide support from the bottom, and establish a double thickness of material. The strip width of the steel is established to accommodate a 180 degree return bend and 90 degree flange. The 180 degree return bend has a double thickness that also adds rigidity to the edge of the material. This not only distributes static and dynamic loads, but also contributes additional overall strength and capacity. The recessed flange is designed such that once the framework on the unit is assembled, the shelving member will drop into the frame and rest inside the beams and braces.

The shelving unit of the present invention preferably includes at least 4 vertical post members mutually spaced from one another. The structural beams are orientated perpendicular to post members and removeably associated therewith taking the form of a parallelogram. The shelving unit is complete when shelf members are removeably attached to the structural beam and vertical post framework. Various attachments may be added to the shelving unit when the recessed structural beams are used. These and other features will become more clearly understood upon consideration of the following detailed description and accompanying drawings.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

FIG 1 is an isometric view of the shelving unit;

FIG 2 is a broken view of the apertures on a vertical post;

FIG 3 is a broken view illustrating the connection between the shelving member and the structural beam via the recessed flange;

FIG 4 is an exploded view illustrating the recessed structural beam with ribbing to vertical post assembly via nubs and apertures;

FIG 5 is a cross sectional view of the profile of the recessed structural beam with ribbing;

FIG 6 is a corner view illustrating a shelf member being installed and positioned by the recessed flange;

FIG 7 is a broken top view of the corner of the shelving unit;

FIG 8 is a pictorial view of an example of one profile possible with an attachment;

FIG 9 is the side view of the example profile for the attachment shown in FIG 8;

FIG 10 is an exploded view illustrating a standard structural beam with ribbing being assembled to vertical post via nubs and apertures;

FIG 11 is a cross sectional view taken along a plane passing through the line 11 / 11 and looking in the direction of the arrows of the line 11 / 11 of the standard structural beam;

FIG 12 is a corner view illustrating a shelf member being installed and positioned by the standard beam with ribbing and the angled flange; and

FIG 13 is a cross sectional profile of the recessed structural beam without ribbing.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to Fig. 1, the assembled shelving unit 1 is shown including four vertical posts

10. Each vertical post 10 has a pair of legs 20, 21 perpendicular to one another as shown in Fig. 4. A plurality of structural beams 2, 25, or 30 and horizontal shelving members 12 extend between the pairs of legs 20, 21 on vertical posts 10 and are attached in a manner to be described below.

The recessed structural beams 2 include a rib 8, with a recessed flange 6, and a return flange 4 as seen in Fig. 5. The rib 8, recessed flange 6, and return flange 4 terminate in a vertical edge of the recessed structural beam 2. The recessed flange 6 is chamfered at the ends of its base 7 in order to enable assembly to appear as seen in Fig. 4 once it has moved along the dashed lines to engage the legs 20, 21 of the vertical post 10.

The recessed structural beam 2 is preferably and approximately 2.5 inches in height. The recessed flange 6 is preferably and approximately 0.56 inches in height and 0.47 inches in length. The center point of the rib 8 is preferably and approximately located 0.88 inches from the base of the recessed structural beam 2. The rib 8 is roughly 0.338 inches in height with radiuses at its ends of about 0.095 inches while its center radius is at approximately 0.11 inches. The horizontal return flange 4 is approximately 0.22 inches in length. The location and/or dimensions are critical to the overall capacity of the product. However, the major features are the characteristics of the shape of these attributes. The specific locations do not materially affect the overall capacity. While the above listed dimensions are preferred, other combinations are possible.

The recessed structural beams 30 combine a recessed flange 31 and a return flange 32 as seen in Fig. 13. The recessed flange 31 and return flange 32 terminate in a vertical edge of the recessed structural beam 30. The recessed flange 31 is chamfered at its base 33 in order to enable assembly much in the same way as recessed flange 6 is chamfered at its base 7 on

recessed structural beams 2 as shown in Fig. 4 once it has moved along the dashed lines to engage the legs 20, 21 of the vertical post 10.

The recessed structural beam 30 is preferably and approximately 2.8 inches in height. The recessed flange 31 is preferably and approximately 0.566 inches in height and 0.47 inches in length. The horizontal return flange 32 is preferably and approximately 0.22 inches in length. The location and/or dimensions are critical to the overall capacity of the product. However, the major features are the characteristics of the shape of these attributes. The specific locations do not materially affect the overall capacity. While the above listed dimensions are preferred, other combinations are possible.

The standard structural beams 25 includes a rib 26 formed between an angled standard flange 27 and an angled return flange 28 as seen in Fig. 11. The rib 26, angled standard flange 27, and angled return flange 28 terminate in a vertical edge of the standard structural beam 25. The angled standard flange 27 is chamfered in order to enable standard structural beam assembly to appear as seen in Fig. 10 once it has moved along the dashed lines to engage the legs 20, 21 of vertical post 10.

The standard structural beam 25 is preferably and approximately 2.25 inches in height. The angled standard flange 27 is preferably and approximately 0.385 inches in length forming an acute angle of approximately 85 degrees with the vertical portion of the beam 25. The rib 26 is preferably and approximately 0.338 inches in height with radiuses at its ends of about 0.095 inches while its center radius is at approximately 0.11 inches. The angled return flange 28 is approximately 0.23 inches in length forming an acute angle of approximately 85 degrees with the vertical portion of the beam 25. The location and/or dimensions are critical to the overall capacity of the product. However, the major features are the characteristics of the

shape of these attributes. The specific locations do not materially affect the overall capacity. The above listed dimensions are preferred, but other combinations are possible.

Structural beams 2, 25, and 30 are provided with nubs 14 which are welded to said structural beams 2, 25, and 30 which can be seen in Fig. 5, Fig. 11 and Fig. 13 respectfully. The purpose of nubs 14 is to enable structural beams 2, 25, and 30 to be associated with the vertical post 10. A pair of nubs 14 are located at each end of structural beams 2, 25, and 30. The vertical location of each pair of nubs 14 must be relative to the vertical distance between the key shaped apertures 18 on legs 20 and 21 on vertical post 10. The horizontal location of nubs 14 on structural beams 2, 25, and 30 must be such that they would enable a corner fit between structural beams 2, 25, or 30 such as shown in Fig. 6 and Fig. 12. As such, each pair of nubs 14 will be proportionate across the vertical centerline of structural beams 2, 25, and 30.

As seen in Fig. 1 and Fig. 2, the vertical posts 10 are provided with a plurality of key shaped apertures 18 each generally comprising a circular hole 19 with a slot 19a that extends slightly downward from the larger circular hole 19. These key shaped apertures 18 along with nubs 14 enable beams 2, 25, and 30 to be assembled to the vertical post 10.

To assemble the framework, the vertical posts 10 should be orientated in a way such that the legs 20, 21 of each post 10 are aligned with the legs 20, 21 of the remaining 3 posts to form a rectangular shape within the legs 20, 21 of all four posts 10. The structural beams 2, 25, or 30 can then be removeably attached to the vertical posts 10 such as seen in Fig. 4 or Fig. 10. In operation, the nubs 14 are inserted through respective key shaped apertures 18 such that the nub head 15 of the nub 14 passes through the circular hole 19 as shown in Fig. 4 and Fig. 10. To removeably lock the beams 2, 25, or 30 to the vertical posts 10, the structural beams 2, 25, 30 and the nubs 14 should be adjusted downward so that the nub neck 15a becomes positioned

in the slots 19a as seen in Fig. 6 and Fig. 12. The shape of the circular hole 19 corresponds to that of the nub head 15 and the width of the slot 19a corresponds to that of the nub neck 15a. The structural beams 2, 25, or 30 are secured to the posts 10 using this method due to the tight fit created between the nub neck 15a and the slots 19a combined with the weight of said beams 2, 25, or 30 in conjunction with gravity to hold said beams 2, 25, or 30 in place. This process should be repeated until all structural beams 2, 25, or 30 are removeably attached to the vertical posts 10.

Once structural beams 2, 25, or 30 are associated to vertical post 10, it is then possible to removeably associate shelf member 12 to the unit thereby completing the shelving unit 1. To associate with the recessed structural beams 2 or 30, shelving members 12 are positioned to rest on the recessed flange base 7 or 33 of recessed flanges 6 or 31 of the recessed structural beams 2 or 30, respectively, as seen with recessed structural beams 2 in Fig. 6. To associate with the standard structural beams 25, shelving members 12 are positioned to rest on top of angled standard flange 27 as seen in Fig. 12. The shelving member 12 is secured due to the weight of the shelving member 12 in conjunction with gravity.

The shelving members 12 can include particle board, wood board, plywood, or any similar material. The shelving members 12 generally have a rectangular shape as seen in Fig. 1. The shelving members 12 contain a taper 16 as seen in Fig. 3 to provide clearance for various attachments when used with recessed structural beams 2 or 30. The taper 16 is such that the distance from the end of the shelving member base 17 to the vertical centerline of the shelving member is greater than the distance from the end of the shelving member top 17a to the vertical centerline of the shelving member. This is true for all 4 sides of the shelving member 12.

Various attachments such as the one pictured in Figs. 8 and Fig. 9 will fit securely on the recessed flange side 7a. The clearance provided between the shelving member top 17a and the recessed flange side 7a, enable the attachment 22 to become removably attached to the shelving unit 1 via the recessed flange side 7a. The upper hook 23 of the attachment 22 is of a shape which corresponds to thickness of the recessed flange side 7a such that the upper hook 23 securely fastens to said recessed flange side 7a thereby creating a tight fit as seen in Fig. 9. Although the upper hook 23 of the attachment 22 must remain constant in size and shape, the base 23a of the attachment 22 may be varied to hold different objects such as hammers or brooms.

It may thus be seen that the objects of the present inventions set forth as well as those made apparent from the foregoing description, are officially obtained. While the preferred embodiments of the invention have been set for purposes of disclosure, modification of the disclosed embodiments of the invention as well as other embodiments thereof may occur to those skilled in the art. Accordingly, the appended claims are intended to cover all embodiments which do not depart from the spirit and scope of the invention.

CLAIMS

We claim:

1. A framework that can be used for storage comprising:
 - recessed structural beams having a return flange at their base, a recessed flange at their top, and a rib there between, said recessed structural beams being positioned horizontally and parallel with the ground to define parallelograms there between,
 - at least four parallel vertical posts, each extending at a right angle to said recessed structural beams and being positioned at each of the corners of the parallelogram formed by said recessed structural beams,
 - at least three shelf members shaped substantially in the form of said parallelograms formed by said recessed structural beams,
 - said recessed structural beams being removeably associated to vertical posts to form four corners, thereby enabling said shelf members to be supported by said recessed structural beams and removeably secured by said recessed flanges of said recessed structural beams.
2. A framework as defined in claim 1 wherein said recessed structural beams include:
 - said horizontal return flange on the base of each of said recessed structural beams extending the full length of said recessed structural beams.
3. A framework as defined in claim 1 wherein said recessed structural beams include:
 - said recessed flange at top of said recessed structural beams taking the form of an "L" shape where the base of said "L" is parallel to the horizontal return flange located at the base of said recessed structural beams, the recessed flange being chamfered at both ends of said recessed structural beams enabling said recessed structural beams to create a corner fit.
4. A framework as defined in claim 1 wherein said recessed structural beams include:

said rib strategically positioned between said recessed structural beams' base and top, which extends the full length of said recessed structural beams.

5. A framework as defined in claim 1 wherein said recessed structural beams include:
a variable number of mushroom shaped nubs attached to the ends of said recessed structural beams proportionately located near the base and top in a combination that will enable the assembly of said recessed structural beams to said vertical posts.

6. A framework as defined in claim 1 wherein said shelf member contains a slight taper from the base to the top of said shelf member so that the distance from the end of the shelf member base to the vertical centerline of the shelf member is greater than the distance from the end of the shelf member top to the vertical centerline of the shelf member, said taper allows clearance for various attachments.

7. A framework as defined in claim 1 wherein said vertical posts encompass two perpendicular planes which meet at a right angle, said posts are orientated to create a corner open to said recessed structural beams, and each plane of said vertical posts contain key shaped apertures spaced from the top of said vertical posts to the base of said vertical posts enabling said vertical posts to fasten to said recessed structural beams.

8. A framework according to claim 1 which is assembled by way of:
orientating the "L" shaped recessed flange on each of said recessed structural beams toward the center of the parallelogram created by said four recessed structural beams,
aligning said nubs on each of said recessed structural beams with said key hole shaped apertures on vertical posts,

inserting said nubs into the largest diameter portion of said apertures of said vertical posts which enables the nubs to securely fasten said recessed structural beams to said vertical

posts by dropping vertically towards the smaller diameter portion of the aperture thereby creating a tight fit, this insertion of said nubs with said apertures is executed at both ends of said recessed structural beams with corresponding vertical posts,

said shelf member is removeably secured to recessed structural beams by resting on said recessed flanges of each of four said recessed structural beams, which combines with said taper allowing slight clearance at the top of said shelf member for various attachments.

9. An attachment for use with the framework described in claim 1 including:

an upper hook enabling the attachment to be removeably attached to the recessed flange, namely the vertical portion of the "L" shaped recessed flange on the recessed structural beam, via the taper created in the shelf member as described in claim 6.

10. A framework that can be used for storage comprising:

recessed structural beams having a return flange at their base and a recessed flange at their top, said recessed structural beams being positioned horizontally and parallel with the ground to define parallelograms there between,

at least four parallel vertical posts, each extending at a right angle to said recessed structural beams and being positioned at each of the corners of the parallelogram formed by said recessed structural beams,

at least three shelf members shaped substantially in the form of said parallelograms formed by said recessed structural beams,

said recessed structural beams being removeably associated to vertical posts to form four corners, thereby enabling said shelf members to be supported by said recessed structural beams and removeably secured by said recessed flanges of said recessed structural beams.

11. A framework as defined in claim 10 wherein said recessed structural beams include:

said horizontal return flange on the base of each of said recessed structural beams extending the full length of said recessed structural beam.

12. A framework as defined in claim 10 wherein said recessed structural beams include:

said recessed flange at top of said recessed structural beams taking the form of an "L" shape where the base of said "L" is parallel to the horizontal return flange located at the base of said recessed structural beams, the recessed flange being chamfered at both ends of said recessed structural beams enabling said recessed structural beams to create a corner fit.

13. A framework as defined in claim 10 wherein said recessed structural beams include:

a variable number of mushroom shaped nubs attached to the ends of said recessed structural beams proportionately located near the base and top in a combination that will enable the assembly of said recessed structural beams to said vertical posts.

14. A framework as defined in claim 10 wherein said shelf member contains a slight taper from the base to the top of said shelf member so that the distance from the end of the shelf member base to the vertical centerline of the shelf member is greater than the distance from the end of the shelf member top to the vertical centerline of the shelf member, said taper allows clearance for various attachments when associated with recessed structural beam.

15. A framework as defined in claim 10 wherein said vertical posts encompass two perpendicular planes which meet at a right angle, said posts are orientated to create a corner open to said recessed structural beams, and each plane of said vertical posts contain key shaped

apertures spaced from the top of said vertical posts to the base of said vertical posts enabling said vertical posts to fasten to said recessed structural beams.

16. A framework according to claim 10 which is assembled by way of:

orientating the “L” shaped recessed flange on each of said recessed structural beams toward the center of the parallelogram created by said four recessed structural beams,

aligning said nubs on each of said recessed structural beams with said key hole shaped apertures on vertical posts,

inserting said nubs into the largest diameter portion of said apertures of said vertical posts which enables the nubs to securely fasten said recessed structural beams to said vertical posts by dropping vertically towards the smaller diameter portion of the aperture thereby creating a tight fit, this insertion of said nubs with said apertures is executed at both ends of said recessed structural beams with corresponding vertical posts,

said shelf member is removeably secured to recessed structural beams by resting on said recessed flanges of each of four said recessed structural beams, which combines with said taper allowing slight clearance at the top of said shelf member for various attachments.

17. An attachment for use with the framework described in claim 10 including:

an upper hook enabling the attachment to be removeably attached to the recessed flange, namely the vertical portion of the “L” shaped recessed flange on the recessed structural beam, via the taper created in the shelf member as described in claim 14.

18. A framework that can be used for storage comprising:

standard structural beams having an angled return flange at their base, an angled standard flange at their top, and a rib there between, said standard structural beams being positioned horizontally and parallel with the ground to define parallelograms there between,

at least four parallel vertical posts, each extending at a right angle to said standard structural beams and being positioned at each of the corners of the parallelogram formed by said standard structural beams,

at least three shelf members shaped substantially in the form of said parallelograms formed by said standard structural beams,

said standard structural beams being removeably associated to vertical posts to form four corners, thereby enabling said shelf members to be supported by said standard structural beams and removeably secured by said standard angled flanges of said standard structural beams.

19. A framework as defined in claim 18 wherein said standard structural beams include:

said rib strategically positioned between said standard structural beams' base and top, which extends the full length of said standard structural beams.

20. A framework as defined in claim 18 wherein said standard structural beams include:

said angled return flange so that the beams contain an acute angle of approximately 85 degrees on the base of each of said standard structural beams extending the full length of said standard structural beams.

21. A framework as defined in claim 18 wherein said standard structural beams include:

said standard angled flange at top of said standard structural beams so that the beams contain an acute angle of approximately 85 at the top of each said standard structural beams extending the full length of said standard structural beams.

22. A framework as defined in claim 18 wherein said standard structural beams include:

a variable number of mushroom shaped nubs attached to the ends of said standard structural beams proportionately located near the base and top in a combination that will enable the assembly of said standard structural beams to said vertical posts.

23. A framework as defined in claim 18 wherein said vertical posts encompass two perpendicular planes which meet at a right angle, said posts are orientated to create a corner open to said standard structural beams, and each plane of said vertical posts contain key shaped apertures spaced from the top of said vertical posts to the base of said vertical posts enabling said vertical posts to fasten to said standard structural beams.

24. A framework according to claim 18 which is assembled by way of:

orientating the standard structural beams so that the flanges are directed toward the center of the parallelogram created by said four standard structural beams,

aligning said nubs on each of said standard structural beams with said key hole shaped apertures on vertical posts,

inserting said nubs into the largest diameter portion of said apertures of said vertical posts which enables the nubs to securely fasten said standard structural beams to said vertical posts by dropping vertically towards the smaller diameter portion of the aperture thereby creating a tight fit, this insertion of said nubs with said apertures is executed at both ends of said standard structural beams with corresponding vertical posts,

said shelf member is removeably secured to standard structural beams by resting on said standard angled flange of each of four said standard structural beams.

25. A recessed structural beam for use with a storage unit comprising:

a horizontal return flange on the base of said recessed structural beam extending the full length of said recessed structural beam,

a rib strategically positioned between said recessed structural beam's base and top, which extends the full length of said recessed structural beam,

a recessed flange at top of said recessed structural beam taking the form of "L" shape where the base of said "L" is parallel to the horizontal return flange located at the base of said recessed structural beam, the recessed flange is chamfered at both ends of said recessed structural beam enabling said recessed structural beams to create a corner fit,

a variable number of mushroom shaped nubs attached to the ends of said recessed structural beam proportionately located near the base and top in a combination that will enable the assembly of said recessed structural beam to said vertical posts.

26. A recessed structural beam for use with a storage unit comprising:

a horizontal return flange on the base of said recessed structural beam extending the full length of said recessed structural beam,

a recessed flange at top of said recessed structural beam taking the form of "L" shape where the base of said "L" is parallel to the horizontal return flange located at the base of said recessed structural beam, the recessed flange is chamfered at both ends of said recessed structural beam enabling said recessed structural beams to create a corner fit,

a variable number of mushroom shaped nubs attached to the ends of said recessed structural beam proportionately located near the base and top in a combination that will enable the assembly of said recessed structural beam to said vertical posts.

27. A standard structural beam for use with a storage unit comprising:

an angled return flange so that the beam forms an acute angle of approximately 85

degrees on the base of said standard structural beam extending the full length of said standard structural beam,

a rib strategically positioned between said standard structural beam's base and top, which extends the full length of each of said standard structural beam,

a standard angled flange at top of said standard structural beam so that the beam forms an acute angle of approximately 85 degrees at the top of said standard structural beam extending the full length of said structural beam, said angled flange is chamfered at both ends of said standard structural beam enabling said standard structural beams to create a corner fit,

a variable number of mushroom shaped nubs attached to the ends of said standard structural beam proportionately located near the base and top in a combination that will enable the assembly of the shelf.

ABSTRACT OF DISCLOSURE

A cargo rack utilizing a structural beam in the form of three embodiments. two of the embodiments comprising a rib, one of which includes a recessed flange and a horizontal return flange, the other includes a standard angled flange and an angled return flange, the third embodiment includes a recessed flange and a horizontal return flange, structural beams used in a framework comprising a plurality of vertical posts containing key shaped apertures and a plurality of horizontal shelving members, structural beams contain nubs enabling structural beams to connect to vertical posts via key shaped apertures thereby enabling horizontal shelving members to be associated with structural beams and vertical posts, various attachments may be added to cargo rack when recessed structural beams are used via a slight clearance that is formed between the recessed edge and a slight taper on horizontal shelving member sides.

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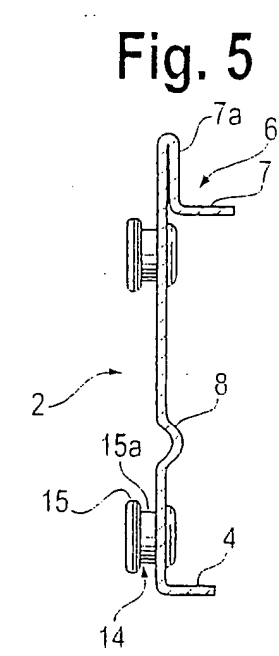
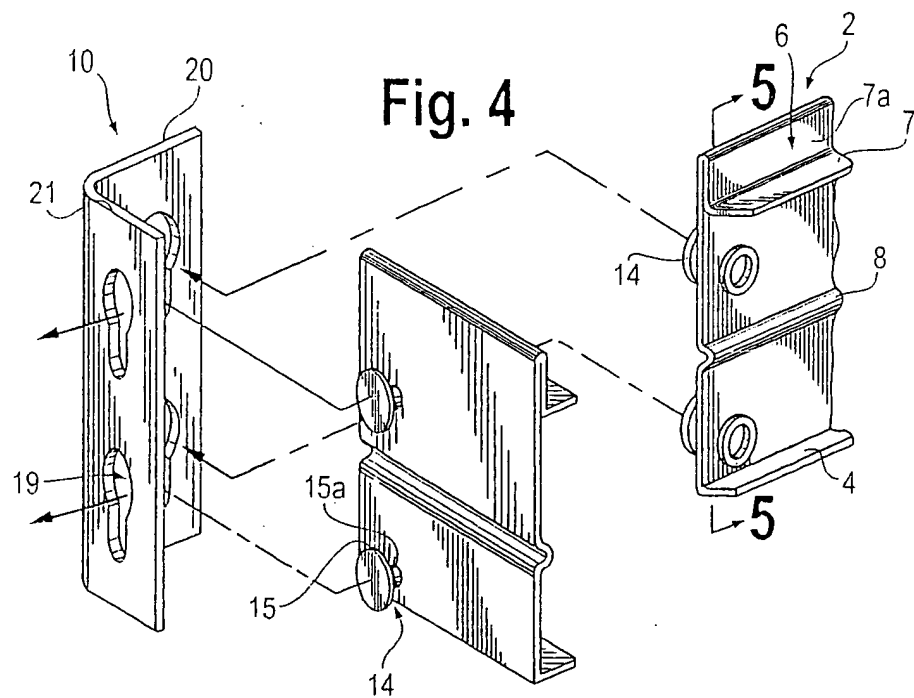
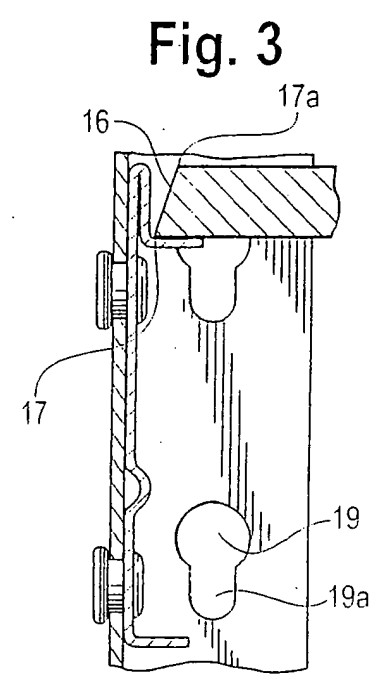
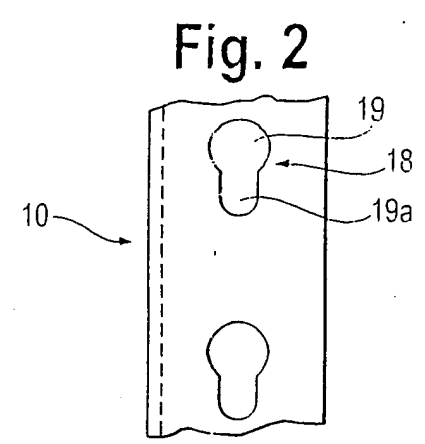
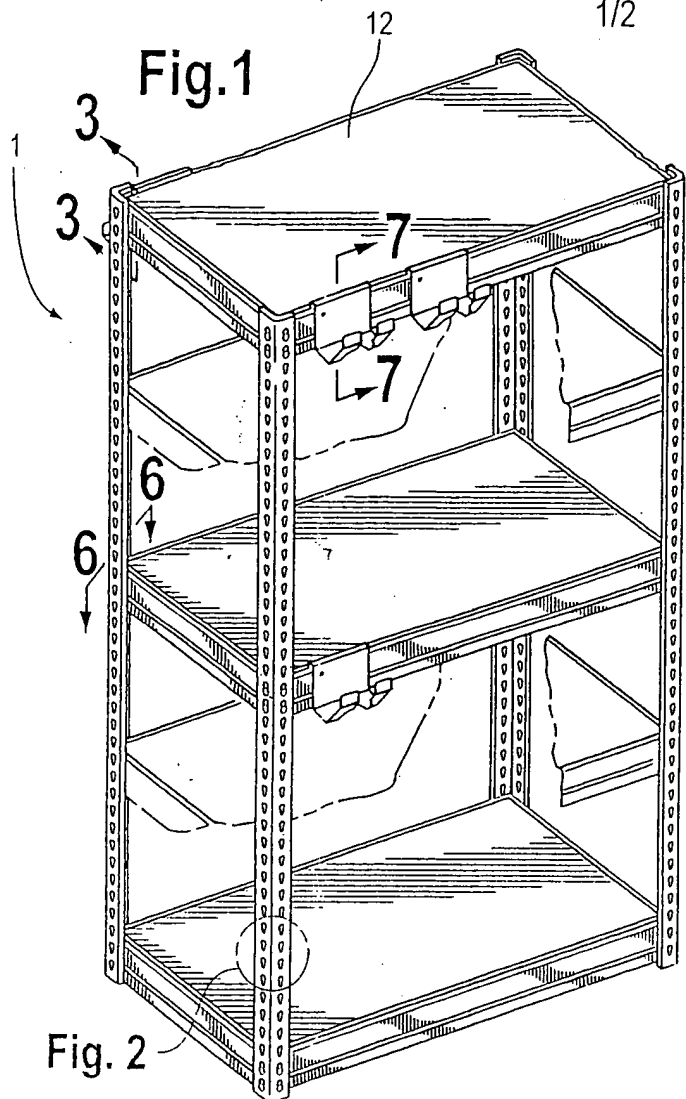
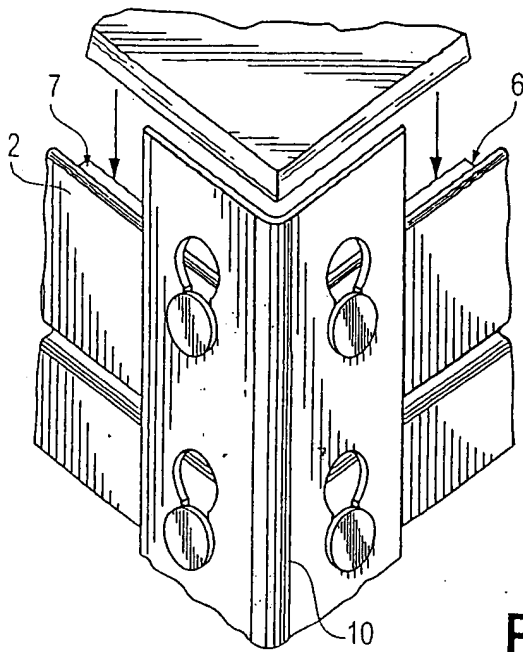


Fig. 6



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Fig. 7

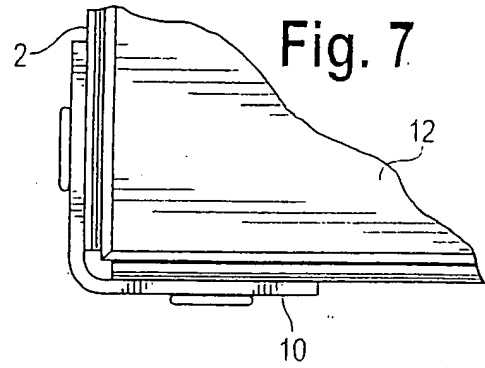


Fig. 11

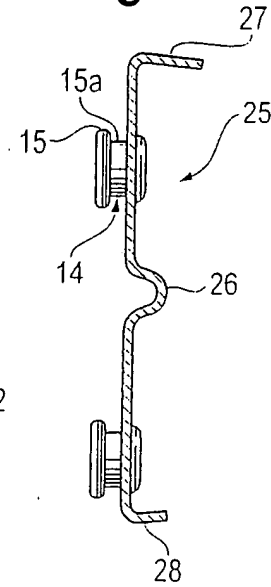


Fig. 13

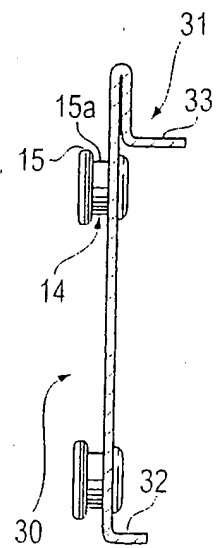


Fig. 8

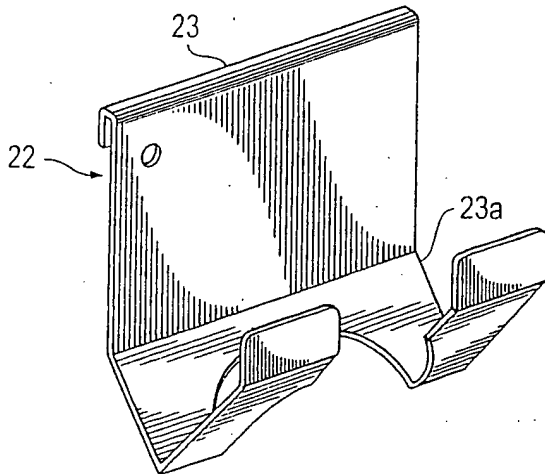


Fig. 9

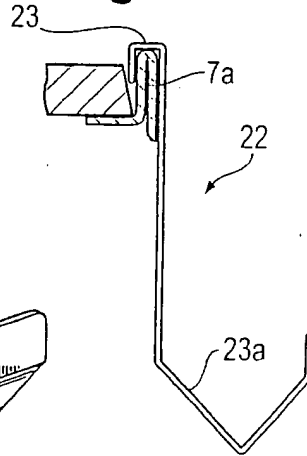


Fig. 10

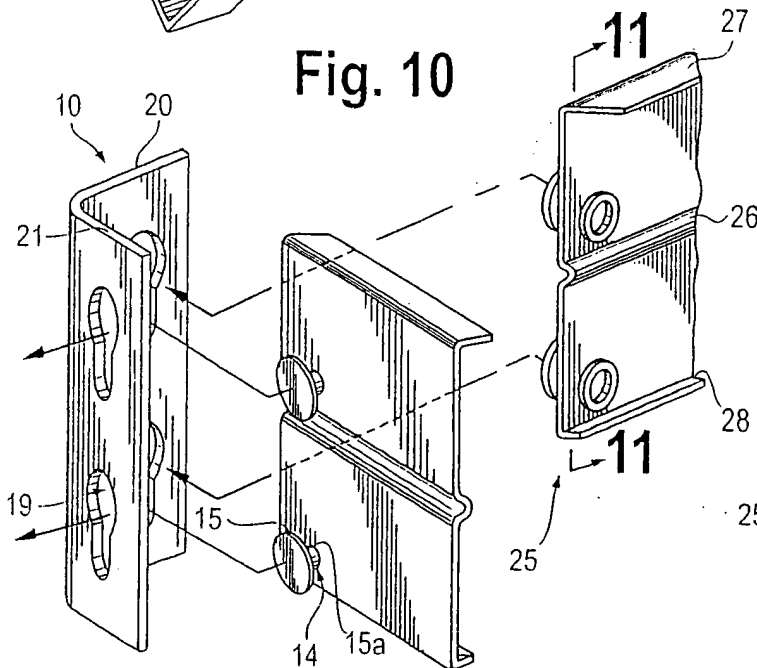
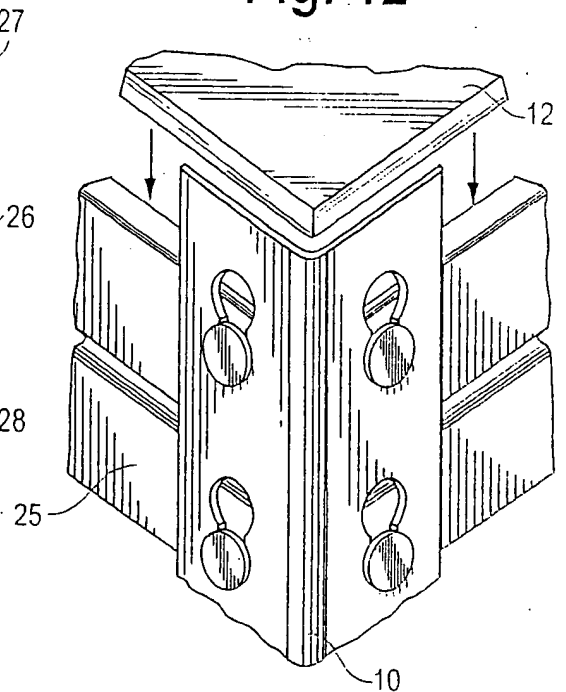


Fig. 12





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